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JUL 6 2004

GROUP 3600

Appn. Number : 10/021,656
Appn. Filed : 12-12-2001
Applicant : Gary C. Johnson (applicant pro se)
Title : Johnson-positive action continuous traction (p.a.c.t.) differential.
Examiner : Dirk Wright
Art Unit : 3681

SUBSTITUTE CLAIMS (7and 8 [3 pages])

I Claim:

7. A new self controlled, self contained, gear drive differential; having continuous drive means for each drive axle, said differential comprising a bevel pinion gear differential gear, and at least one planetary differential gear, said new differential including:

- a differential gear housing (8) that is drivable rotatively; and
- bevel pinion gears (13),(14) mounted in the said housing (8) for axial and radial rotation therewith; and
- differential side bevel gears (11),(12) mounted rotatively in the said housing (8), meshing with the said bevel pinion gears (13),(14); and
- one axle shaft (5) being axially stationary to the side bevel gear (12), said axle shaft (5) being freely rotative within the said differential housing (8); and further comprising:

at least one said planetary differential gear comprising:

- two sun gears (6),(7), at least one planet gear (15),(16), a support structure (9), one input shaft (19), and two output shafts (5),(10);

(CLAIM 7-continued)

wherein:

- (a) said support structure (9) is independently rotative of any other housing of the said differential, the support structure (9) supporting the said at least one planet gear (15), (16), the said support structure (9) being axially stationary to the side bevel gear (11), the support structure (9) being axially and rotatively within the differential case (8), and
- (b) one input shaft (19) being axially stationary to the drive case (8), the said input shaft (19) having a smooth rounded inner surface throughout, and
- (c) a first sun gear (7) being open throughout it's central axis, being axially stationary to the end of the said input shaft (19), and
- (d) a first output shaft (5) being freely entered through and past the end of the input shaft (19) and past the said first sun gear (7); herein the end of the said first output shaft (5) protruding past the said first sun gear (7) and into the support structure (9), and
- (e) a second output shaft (10) being freely entered through the case (8); wherein the said second output shaft (10) is axially stationary to the said support structure (9), and
- (f) a second sun gear (6) being axially stationary to the end of the first output shaft (5), and
- (g) a shaft(s) (17),(18) being off-centered and stationary in the support structure (9) along the central axis of the differential, and
- (h) at least one planet gear (15),(16) orbitally engaged to the said first and second sun gear (6),(7); the said at least one planet gear (15),(16) being rotatively stationary in the support structure (9) by way of the said shaft(s) (17),(18).

CLAIM STATUS : Claims 1-6 (cancelled), claims 7 and 8 (new)

(CLAIM-8)

8. At least one planetary differential gear as claimed in claim 7 comprising:
an inner support structure (9) axially and independently rotational to the
afore said differential case (8), one input shaft (19), a first sun gear (7),
a first output shaft (5), a second output shaft (10), a second sun gear (6),
a shaft(s) (17,18), and planet gear(s) (15,16);

wherein:

- (a) support structure (9); is independently rotational of any other housing of the differential, supporting the said planet gear(s) (15,16), being axially stationary to the afore said side bevel (11), the said support structure (9) being axially supported by way of the differential case (8), and
- (b) an input shaft (19); being axially stationary to the drive case (8), the said input shaft (19) being smooth and rounded throughout it's inner surface, and
- (c) a first sun gear (7); being open throughout it's central axis and axially stationary to the end of said input shaft (19), and
- (d) a first output shaft (5); entered freely through and past the end of the said input shaft (19) and past the said first sun gear (7), the end of the said first output shaft (5) protruding past the said first sun gear (7) and entering into the said support structure (9), and
- (e) a second output shaft (10); entered freely through the case (8), the said second output shaft (10) is axially stationary to the support structure (9), and
- (f) a second sun gear (6) being axially stationary to the end of the said first output shaft (5), and
- (g) a shaft(s) (17,18) being off-centered and stationary in the said support structure (9), the axis(s) of said shaft(s) (17,18) being parallel to the central axis of the differential, and
- (h) a planet gear(s) (15,16); being rotationally stationary and supported in the said support structure (9) on the shaft(s) (17,18), the said planet gear(s) (15,16) being orbit engaged to the said first and second sun gear(s) (6,7).

CLAIM STATUS: Claims 1-6 (cancelled,)

: Claims 7 and 8 (new)